

WHAT IS CLAIMED IS:

1. A method comprising:
processing a definition of a function associated with a first language to create description information about the function, the description information being sufficient to enable translation of a call to the function into a call to a corresponding function in a second language without requiring processing of the definition of the function.
2. The method of claim 1, further comprising:
storing the description information in a file of description items.
3. The method of claim 1, wherein processing the definition of the function comprises:
examining the definition of the function associated with the first language;
deriving information about the function; and
using the derived information to translate the call to the function into a call to a corresponding function in the second language.
4. The method of claim 3, further comprising:
using the derived information to create the description information.
5. The method of claim 3, further comprising:
storing the translated function in the second language in a library of entries.
6. The method of claim 1, in which processing the definition of the function comprises:
deriving a number of declared formal inputs to the function.
7. The method of claim 1, in which processing the definition of the function comprises:
deriving a number of declared formal outputs to the function.

1 8. The method of claim 1, in which processing the definition of the function
2 comprises:
3 deriving a scope of the function.
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1 9. The method of claim 1, in which processing the definition of the function
2 comprises:
3 determining whether the function accepts a variable number of arguments.
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1 10. The method of claim 1, in which processing the definition of the function
2 comprises:
3 determining whether the function returns a variable number of results.
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1 11. A method comprising:
2 providing a file of description items, each item including description information about a
3 function associated with a first language, the description information being sufficient to enable
4 translation of a call to the function into a call to a corresponding function in a second language
5 without requiring processing of the definition of the function; and
6 using the file of description items to translate a first program file into a second program
7 file.
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1 12. The method of claim 11, wherein the description information about the function
2 comprises:
3 a descriptor identifying a declared number of formal inputs to the function.
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1 13. The method of claim 11, wherein the description information about the function
2 comprises:
3 a descriptor identifying a declared number of formal outputs to the function.
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1 14. The method of claim 11, wherein the description information about the function
2 comprises:
3 a descriptor identifying a scope of the function.

15. The method of claim 11, wherein the description information about the function comprises:
a descriptor identifying an acceptance of a variable input argument list into the function.

16. The method of claim 11, wherein the description information about the function comprises:
a descriptor identifying a return of a variable output argument list from the function.

17. The method of claim 11, wherein using the file of description items comprises:
for each call to a function in the first program file, retrieving an item from the file of description items;
using the description information in the item to translate the call to the function in the first language into a call to a corresponding function in the second language; and
storing the translated function in the second program file.

18. The method of claim 11, wherein using the file of description items comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying an acceptance of a variable input argument list into the function.

19. The method of claim 11, wherein using the file of description items comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying a return of a variable output argument list from the function.

20. The method of claim 11, wherein using the file of description items comprises:
generating a call through a normal interface for the function if the description information includes a descriptor identifying a known number of input and output arguments to the function.

21. A method comprising:
providing a library file including functions defined by a first language;

processing the library file to create a function library and a description file, the function library including one or more functions defined by a second language, each function in the function library being a translated version of a function in the library file, and the description file including description information about each function in the library file, the description information being sufficient to enable translation of a call to the function into a call to a corresponding function in the second language without requiring processing of the definition of the function; and

using the description file to translate a program file from the first language into the second language, wherein each call in the program file to a function in the library file is translated into a call to a corresponding function in the second language.

22. The method of claim 21, wherein processing the library file comprises:
translating the call to each function in the library file into a call to a corresponding function in the second language; and
creating a function library including the translated version of each function in the library file.

23. The method of claim 22, further comprising:
examining the definition of each function in the library file;
deriving information about each function; and
using the derived information to translate the call to each function into a call to a corresponding function in the second language.

24. The method of claim 23, further comprising:
using the derived information about each function to create the description information;
and
creating a description file including description information about each function in the library file.

25. The method of claim 21, wherein using the description file comprises:
for each call in the program file to a function in the library file, retrieving the description information about the function from the description file; and
using the description information to translate the call to the function in the first language into a call to a corresponding function in the second language.

26. The method of claim 21, wherein using the description file comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying an acceptance of a variable input argument list into the function.

27. The method of claim 21, wherein using the description file comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying a return of a variable output argument list from the function.

28. The method of claim 21, wherein using the description file comprises:
generating a call through a normal interface for the function if the description information includes a descriptor identifying a known number of input and output arguments to the function.

29. A computer program product, tangibly stored on a computer-readable medium, for creating a data file, the product comprising instructions operable to cause a programmable processor to:
process a definition of a function associated with a first language to create description information about the function, the description information being sufficient to enable translation of a call to the function into a call to a corresponding function in a second language without requiring processing of the definition of the function.

30. The product of claim 29, further comprising instructions operable to cause a programmable processor to:
store the description information in a file of description items.

1 31. The product of claim 29, wherein processing the definition of the function
2 comprises:
3 examining the definition of the function associated with the first language;
4 deriving information about the function; and
5 using the derived information to translate the call to the function into a call to a
6 corresponding function in the second language.

1 32. The product of claim 31, further comprising instructions operable to cause a
2 programmable processor to:
3 use the derived information to create the description information.

1 33. The product of claim 31, further comprising instructions operable to cause a
2 programmable processor to:
3 store the translated function in the second language in a library of entries.

1 34. The product of claim 29, in which processing the definition of the function
2 comprises:
3 deriving a number of declared formal inputs to the function.

1 35. The product of claim 29, in which processing the definition of the function
2 comprises:
3 deriving a number of declared formal outputs to the function.

1 36. The product of claim 29, in which processing the definition of the function
2 comprises:
3 deriving a scope of the function.

1 37. The product of claim 29, in which processing the definition of the function
2 comprises:
3 determining whether the function accepts a variable number of arguments.

1 38. The product of claim 29, in which processing the definition of the function
2 comprises:
3 determining whether the function returns a variable number of results.
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1 39. A product, stored on a machine-readable medium, for translating a program file,
2 the product comprising instructions operable to cause a processor to:
3 provide a file of description items, each item including description information about a
4 function associated with a first language, the description information being sufficient to enable
5 translation of a call to the function into a call to a corresponding function in a second language
6 without requiring processing of the definition of the function; and
7 use the file of description items to translate a first program file into a second program
8 file.

1 40. The product of claim 39, wherein the description information about the function
2 comprises:
3 a descriptor identifying a declared number of formal inputs to the function.
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1 41. The product of claim 39, wherein the description information about the function
2 comprises:
3 a descriptor identifying a declared number of formal outputs to the function.
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1 42. The product of claim 39, wherein the description information about the function
2 comprises:
3 a descriptor identifying a scope of the function.
4

1 43. The product of claim 39, wherein the description information about the function
2 comprises:
3 a descriptor identifying an acceptance of a variable input argument list into the function.
4

44. The product of claim 39, wherein the description information about the function comprises:
a descriptor identifying a return of a variable output argument list from the function.

45. The product of claim 39, wherein using the file of description items comprises:
for each call to a function in the first program file, retrieving an item from the file of description items;
using the description information in the item to translate the call to the function in the first language into a call to a corresponding function in the second language; and
storing the translated function in the second program file.

46. The product of claim 39, wherein using the file of description items comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying an acceptance of a variable input argument list into the function.

47. The product of claim 39, wherein using the file of description items comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying a return of a variable output argument list from the function.

48. The product of claim 39, wherein using the file of description items comprises:
generating a call through a normal interface for the function if the description information includes a descriptor identifying a known number of input and output arguments to the function.

49. A computer program product, tangibly stored on a computer-readable medium, for translating function calls, the product comprising instructions operable to cause a programmable processor to:

provide a library file including functions defined by a first language;
process the library file to create a function library and a description file, the function library including one or more functions defined by a second language, each function in the

function library being a translated version of a function in the library file, and the description file including description information about each function in the library file, the description information being sufficient to enable translation of a call to the function into a call to a corresponding function in the second language without requiring processing of the definition of the function; and

use the description file to translate a program file from the first language into the second language, wherein each call in the program file to a function in the library file is translated into a call to a corresponding function in the second language.

50. The product of claim 49, wherein processing the library file comprises:
translating the call to each function in the library file into a call to a corresponding function in the second language; and
creating a function library including the translated version of each function in the library file.

51. The product of claim 49, further comprising:
examining the definition of each function in the library file;
deriving information about each function; and
using the derived information to translate the call to each function into a call to a corresponding function in the second language.

52. The product of claim 51, further comprising:
using the derived information about each function to create the description information;
and
creating a description file including description information about each function in the library file.

53. The product of claim 49, wherein using the description file comprises:
for each call in the program file to a function in the library file, retrieving the description information about the function from the description file; and

using the description information to translate the call to the function in the first language into a call to a corresponding function in the second language.

54. The product of claim 49, wherein using the description file comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying an acceptance of a variable input argument list into the function.

55. The product of claim 49, wherein using the description file comprises:
generating a call through a function evaluation interface for the function if the description information includes a descriptor identifying a return of a variable output argument list from the function.

56. The product of claim 49, wherein using the description file comprises:
generating a call through a normal interface for the function if the description information includes a descriptor identifying a known number of input and output arguments to the function.